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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/775,517

02/09/2004

Don Michael

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EXAMINER

FULK, STEVEN J

ART UNIT

PAPER NUMBER

2891

MAIL DATE

DELIVERY MODE

11/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/775,517

Applicant(s)

MICHAEL ET AL.

Examiner

Steven J. Fulk

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 24-50 and 54-62 is/are pending in the application.
- 4a) Of the above claim(s) 6, 8-16, 30, 31, 48-50 and 56 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32-42 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 24-29, 43-47, 54, 55, 57, 58, 60 and 61 is/are rejected.
- 7) ☒ Claim(s) 59 and 62 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 7, 24-29, 43-47, 54-55, 57-58 and 60-61 are rejected under 35 U.S.C. 102(e) as being anticipated by Michael et al. '283.

The applied reference has a common inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1, 2, 57 and 58, Michael discloses a package for a micro-electromechanical device (MEMS package), comprising: an inner enclosure having an inner cavity defined therein (fig. 2, inner enclosure 100); and a fill port channel (120) communicating with the inner cavity and of sufficient length to allow a quantity of adhesive to enter the fill port channel while preventing the adhesive

from entering the inner cavity, wherein the fill port channel extends at least partially into the inner enclosure (bottom of channel 120 extends into cavity); further comprising a fluid filling the inner enclosure (fig. 4, 400) and an airless interface between the fluid and adhesive (fig. 9, airless interface).

Regarding claims 3 and 7, the reference further discloses the package to comprise a flow control structure extending at least partially into the fill port channel (fig. 8, flow control structures 740 and 600) and wherein the flow control structure comprises a peninsula (740) and prevents the adhesive from entering the cavity by physically obstructing a portion of the fill port channel (600).

Regarding claims 4 and 5, the reference further discloses locking features formed on the flow control structure, wherein the locking features comprise tapered sections formed on the flow control structure to form a choke point in the fill port channel (fig. 8, 740 creates choke point with channel 120).

Regarding claims 24-29, 60 and 61, Michael discloses a package for a micro-electromechanical device (MEMS device), comprising: an inner enclosure having an inner cavity (fig. 2, 100) defined therein; a fill port channel (120) coupling the inner cavity to an atmosphere; and a flow control structure (fig. 8, 740 and 600) being configured to control the flow of fluid into the inner cavity comprising a physical barrier between the fill port channel and a portion of the inner cavity (600) and extending at least partially into the inner enclosure and comprising a peninsula (740); further comprising locking features formed on the flow control structure as tapered sections that form a choke point at an intermediate portion of the fill port channel (fig. 8, 740 creates choke point with channel 120); and further comprising

an adhesive in the fill port channel (fig. 9, 900), a fluid filling the inner enclosure (fig. 4, 400) and an airless interface between the fluid and adhesive (fig. 9, airless interface).

Regarding claims 43-47, Michael discloses a method of forming a package for a micro-electromechanical device (MEMS device), comprising: forming an inner enclosure having an inner cavity (fig. 2, 100) defined therein and forming a fill port channel (120), wherein the fill port channel is in fluid communication with an atmosphere and the inner cavity is of sufficient length to allow a variable flow of adhesive to enter the fill port channel while preventing the adhesive from entering the inner cavity; and flowing a quantity of adhesive through a fill port of the fill port channel and into the fill port channel (fig. 9, 900); wherein the fill port channel extends at least partially into the inner enclosure and further comprising forming a flow control structure to form the fill port channel and to physically separate the fill port channel from the inner cavity (fig. 8, 600); wherein the flow control structure further comprises locking features that have a plurality of tapered sections which form a choke point at an intermediate portion of the fill port channel (fig. 8, 740 creates choke point with channel 120).

Regarding claims 54-55, Michael discloses a MEMS package, comprising: means for containing a MEMS device (fig. 2, 100); a fluid (fig. 4, 400) with the MEMS device in the means for containing the MEMS device; means for introducing the fluid into an interior cavity of the means for containing the MEMS device (channel 120); an adhesive flowed into the means for introducing the fluid (fig. 9, 900); and locking means for controlling a flow of the adhesive through the means

for introducing the fluid as to prevent the adhesive from entering the interior cavity (fig. 8, 740 & 600).

3. Claims 1-3, 24-25 and 43-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Lutz et al. '367.

Regarding claims 1-3, Lutz discloses a package for a micro-electromechanical device (MEMS package), comprising: an inner enclosure having an inner cavity defined therein (fig. 2, cavity 28); and a fill port channel (32) communicating with the inner cavity and of sufficient length to allow a quantity of adhesive to enter the fill port channel while preventing the adhesive from entering the inner cavity (adhesive 34 enters channel but not cavity 28); and further comprising a flow control structure (fig. 7A, trap 60) extending at least partially into the fill port channel and wherein the flow control structure prevents the adhesive from entering the cavity by physically obstructing a portion of the fill port channel (fig. 7A/7B, element 22 obstructs the channel and trap 60 prevents adhesive 34 from entering cavity 28).

Regarding claims 24-25, Lutz discloses a package for a micro-electromechanical device (MEMS device), comprising: an inner enclosure having an inner cavity (fig. 2, 28) defined therein; a fill port channel (32) coupling the inner cavity to an atmosphere; and a flow control structure (fig. 7A, trap 60) extending at least partially into the inner enclosure and being configured to control the flow of fluid into the inner cavity, comprising a physical barrier between the fill port channel and a portion of the inner cavity (fig. 7A/7B, element 22 obstructs the channel and trap 60 prevents adhesive 34 from entering cavity 28).

Regarding claims 43-44, Lutz discloses a method of forming a package for a micro-electromechanical device (MEMS device), comprising: forming an inner enclosure having an inner cavity (fig. 2, 28) defined therein and forming a fill port channel (32), wherein the fill port channel is in fluid communication with an atmosphere and the inner cavity is of sufficient length to allow a variable flow of adhesive to enter the fill port channel while preventing the adhesive from entering the inner cavity; and flowing a quantity of adhesive through a fill port of the fill port channel and into the fill port channel (34); wherein the fill port channel extends at least partially into the inner enclosure and further comprising forming a flow control structure (fig. 7A, trap 60) to form the fill port channel and to physically separate the fill port channel from the inner cavity (fig. 7A/7B, element 22 obstructs the channel and trap 60 prevents adhesive 34 from entering cavity 28).

Allowable Subject Matter

4. Claims 59 and 62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. Claim 32-42 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter: a search of the prior art failed to disclose or reasonably suggest a MEMS package comprising an inner enclosure having an inner cavity defined therein; and a fill port channel communicating with the internal cavity and of sufficient length to allow a quantity of adhesive to enter the fill port channel while preventing the adhesive from entering the inner cavity, and comprising at least one diaphragm

disposed the inner cavity for changing a volume of the inner cavity so as to draw a quantity of the adhesive through the fill port channel, as recited by claim 59.

A search of the prior art also failed to disclose or reasonably suggest a MEMS package comprising an inner enclosure having an inner cavity defined therein; a fill port channel coupling the inner cavity to an atmosphere; and flow control structure extending at least partially into the inner enclosure and being configured to control the flow of fluid into the inner cavity, and comprising at least one diaphragm disposed the inner cavity for changing a volume of the inner cavity so as to draw a quantity of the adhesive through the fill port channel, as recited by claim 62.

A search of the prior art also failed to disclose or reasonably suggest a MEMS assembly, comprising a MEMS device disposed at least partially within a package; the package including an inner enclosure having an inner cavity defined therein, and a fill port channel coupling the inner cavity to an atmosphere and physically separating the atmosphere and the inner cavity by a distance sufficient to allow a variable flow of adhesive to enter the fill port channel while preventing the adhesive from entering the inner cavity; an adhesive seal coupled to the fill port channel; and a diaphragm disposed in the inner cavity for changing a volume of the inner cavity so as to draw a quantity of the adhesive seal through the fill port channel, as recited in claim 32.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven J. Fulk whose telephone number is (571)

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272-8323. The examiner can normally be reached on Monday through Friday,
9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the
examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax
phone number for the organization where this application or proceeding is assigned
is 571-273-8300.

8. Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
Status information for unpublished applications is available through Private PAIR
only. For more information about the PAIR system, see [http://pair-
direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system,
contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you
would like assistance from a USPTO Customer Service Representative or access to
the automated information system, call 800-786-9199 (IN USA OR CANADA) or
571-272-1000.



Steven J. Fulk
Patent Examiner
Art Unit 2891

November 25, 2007



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